...ORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

AM
EA
CI
L

ORDER NO. 98-159

WASTE DISCHARGE REQUIREMENTS
FOR
THE COUNTY OF LAKE
EASTLAKE SANITARY LANDFILL
CLASS III LANDFILL
CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The County of Lake, Lake County Department of Facility Services-Solid Waste Division, owns and operates, the Eastlake Sanitary Landfill. The County of Lake, Lake County Department of Public Services- Solid Waste Division, is hereafter referred to as Discharger.

2. The Discharger submitted the following technical reports in support of these waste discharge requirements: Joint Technical Document (JTD) dated May 1998; Design Report and Engineering Calculations dated April 1998; Construction Documents dated April 1998; Preliminary Closure and Postclosure Maintenance Plan dated July 1996; revisions to the JTD dated 5 and 12 June 1998.

3. The disposal facility was previously regulated by Waste Discharge Requirements (WDRs) Order No. 96-287 in conformance with Title 27 California Code of Regulations, Division 2, Subdivision 1 (hereafter Title 27).

4. This 80-acre disposal facility is comprised of Assessor's Parcel Nos. 41-221-14,15; 41-222-34; 41-223-24; 41-224-39; 41-225-25; 41-226-17,22,23,24,25; 41-233-28; 41-234-01,23,24; 41-235-11,13,14; 41-244-18; 10-006-84, and 10-008-03,39. A portion of the facility is within the City of Clearlake at the east end of Davis Street. The facility is in the south half of Section 23 and the north half of Section 26, T13N, R7W, MDB&M, as shown on Attachment "A", which is incorporated herein and made part of this Order.

5. The waste management facility consists of a single Class III landfill unit within a canyon in the headwaters of Molesworth Creek, and a 600,000 gallon Class II surface impoundment.

6. The landfill will be filled in three phases as shown in Attachment C, which is incorporated herein and made a part of this Order. Phases I consists of the existing fill on the west side of the canyon. Phase II will extend from Phases I eastward in the canyon. Once Phase II is completed, Phase III will be a vertical expansion on top of Phases I and II.

WASTES AND THEIR CLASSIFICATION

The Discharger proposes to continue to discharge municipal solid waste for disposal in the Class III landfill. These wastes are classified as 'nonhazardous and nondesignated solid waste' or 'inert waste', using the criteria set forth in Title 27. The landfill receives all of the County's solid wast

Leachate generated by the landfill is a designated waste. In 1997, the Discharger began discharging leachate to the 600,000 gallon Class II surface impoundment.

DESCRIPTION OF THE SITE

9. The majority of the landfill property is in the unincorporated area of the County. A small portion of the northwest corner of the landfill property is within the city limits of the City of Clearlake. Land within a one-mile radius on the west side of the site is zoned residential, commercial, and open space. Land within a one-mile radius on the east side of the site is open space with chaparral and digger pine.

10. Phase I covers an area of about 500 feet by 1,500 feet in plan to a depth in excess of 100 feet in some areas. Site elevations range from 1,560 feet to 1,760 feet above mean sea level. The vertical expansion will result in a final closure elevation of 1860 feet.

11. The groundwater flow direction at the site is toward Molesworth Creek, formerly a spring-fed intermittent stream, and generally follows the surface topography.

12. The beneficial uses of groundwater are municipal, industrial, and agricultural supply. Current groundwater use within a one-mile radius of the site is limited.

13. Average annual precipitation is 24 inches. The maximum 100-year precipitation is 45 inches. The maximum 100-year, 24-hour storm event is 5.9 inches. (Lakeport gage, 13N/7W-20, Department of Water Resources "Rainfall Analysis for Drainage Design, No. IA", Bulletin No. 195, October 1976.) The mean annual evaporation is 60 inches. (Department of Water Resources, "Evaporation From Water Surfaces", Bulletin No. 73-79, 1979.)

14. The active landfill is not within a 100-year floodplain.

15. The solid waste disposal site is at the headwaters of Molesworth Creek in an area of relatively steep terrain, with slopes ranging from 50 percent to 70 percent.

16. Surface water drainage from the landfill facility is to Molesworth Creek, which is tributary to Clear Lake. The catchment drainage area is approximately 90 acres.

17. The beneficial uses of Clear Lake are municipal and domestic supply, industrial, and agricultural supply, recreation, esthetic enjoyment, navigation, groundwater recharge, hydroelectric power generation, and preservation and enhancement of fish, wildlife and other aquatic resources.

OPERATION OF FACILITIES

18. The landfill began operation in 1972 with waste deposition on the canyon floor about 800 feet from the toe of the existing fill. Prior to 1972, there was an open burn dump on the east facing slope of the Molesworth Creek Canyon. In 1975, most of the refuse on the canyon floor was removed to the existing fill. A cutoff wall was installed about 100 feet below the toe of the landfill unit's 1983 location. The leachate from the cutoff wall is conveyed by pipe to a sump and conveyed to a Class II surface impoundment.

19. Refuse is deposited in the Molesworth Creek Canyon in six-foot high cells which cumulatively will create a landfill depth in excess of 100 feet to a maximum of 300 feet.

20. The Discharger's current plans indicate that the existing Class III landfill unit will reach capacity, at the earliest, by the year 2029. The total capacity of this landfill unit is about 6,000,000 cubic yards.

21. Current plans include expansion of the existing Class III waste management unit. Permitted but previously unfilled areas on the west facing slope of the east ridge of the existing footprint are proposed for a 9-acre lined lateral expansion that will comply with Subtitle D regulations. The present design shows a fill area of approximately 31 acres and an increased elevation of 1860 feet.

22. During construction of the existing landfill unit, a number of springs were unearthed at the head of the canyon. A spring water collection system was installed, as was a leachate collection and removal system (LCRS). After contamination was detected in the spring water collection system, the two systems were jointed. Another LCRS pipe network was later installed in the lower portion of the canyon. All of the commingled spring water and leachate is considered leachate and is managed as such.

23. Leachate from the old landfill unit in the bed of Molesworth Creek is discharged to 600,000 gallon Class II surface impoundment. Leachate from the current landfill unit is discharged to a concrete sump (consisting of two 6 foot diameter sumps constructed from concrete pipes). Leachate from the sump is conveyed to the surface impoundment. Overflow from the surface impoundment is pumped and disposed of through a pipeline to the Southeast Regional Waste Water Treatment Plant (SRWWTP). The approximate locations of the units are shown on Attachment "B", which is incorporated herein and made a part of this Order.

24. The water quality monitoring program contained in these WDRs for detection and evaluation monitoring is in conformance with the requirements Title 27, CCR, Division 2, Subdivision 1, Chapter 3, Subchapter 3, Article 1.

DESIGN OF WASTE MANAGEMENT UNITS

Engineered Alternatives

25. Section 20080 of Title 27 requires the submittal of a demonstration that the prescriptive standard is not feasible because it is unreasonably and unnecessarily burdensome or impractical. the engineered alternative must afford equivalent protection against water quality impairment. The Board has routinely approved the substitution of geosynthetic clay liners for field constructed clay at other sites since March 1995. The Discharger was not required to repeat the demonstration which had been made for other landfills because there are no significant differences in the characteristics of already approved liners and the liner proposed for Eastlake Sanitary Landfill. Kenneth Haskell, a California Registered Civil Engineer, has certified that the prescriptive standard is unreasonably and unnecessarily burdensome and the engineered alternative design using a geosynthetic clay liner (GCL) instead of two feet of low permeability clay as a barrier layer will provide equivalent protection against water quality impairment.

Class II Surface Impoundments

26. The engineered alternative design for the Class II Surface Impoundment consists of, described from top to bottom, a 80-mil HDPE geomembrane primary liner, a geonet LCRS on the sidewalls

of the pond with a one foot layer of drainage gravel on the bottom of the pond, a 40-mil HDPE geomembrane liner with geosynthetic clay liner (GCL) composite secondary liner, and an appropriate bedding layer. The engineered alternative liner system was approved in Board Order 96-287.

Class III Landfill

27. Phase I of the landfill is unlined and does not have an LCRS. The Phase I footprint has not been expanded on or after 9 October 1993.

28. The Discharger proposes an engineered alternative to the prescriptive liner requirements of Title 27 for Phase II of the landfill The engineered alternative design consists of 2 feet of operations layer and four different liner types listed below and as shown in Attachment D and E, which are incorporated herein and made a part of this Order. Each of these composite liners is described from top to bottom as follows:

Type 1 liner will be installed on the eastern slope consisting of the following:

- LCRS geocomposite
- 60-mil HDPE geomembrane
- geosynthetic clay liner
- sub-drain geocomposite

Type 2 liner will be installed from the northern end of Phase II area along the north western side and will have:

- LCRS geocomposite
- 60-mil HDPE geomembrane
- geosynthetic clay liner
- 16 oz geotextile cushion

Type 3 liner will be on the base of the landfill consisting:

- 8 oz. geotextile filter
- 1 foot of LCRS gravel
- 8 oz. geotextile cushion
- 60-mil HDPE geomembrane
- geosynthetic clay liner

Type 4 liner will be on the south western side of the landfill consisting:

- LCRS geocomposite
- 60-mil HDPE geomembrane
- 16 oz geotextile cushion

CEQA AND OTHER CONSIDERATIONS

29. The action to update waste discharge requirements for this landfill facility is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.), in accordance with Title 14, CCR, Section 15301.

30. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulation (Title 40, Code of Federal Regulations, Parts 257 and 258, "federal municipal solid

waste (MSW) regulations" or "Subtitle D") that apply, in California, to dischargers who own or operate Class III landfill units at which municipal solid waste (MSWLF) is discharged. The majority of the federal MSW regulations became effective on the "Federal Deadline", which was 9 October 1993.

31. This Order implements:

    a. Water Quality Control Plan, Third Edition, for the Sacramento River and San Joaquin River Basins;
    b. prescriptive standards and performance goals of Subdivision 1, Division 2, Title 27 of California Code of Regulations, effective 18 July 1997, and subsequent revisions;
    c. prescriptive standards and performance criteria of Part 258, Title 40 of the Code of Federal Regulations (Subtitle D of the Resource Conservation and Recovery Act); and
    d. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted 17 June 1993.

PROCEDURAL REQUIREMENTS

32. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

33. The Board has notified the Discharger and interested agencies and persons of its intention to revise the WDRs for this facility.

34. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Order No. 96-287 be rescinded and it is further ordered that the County of Lake, its agents, assigns and successors, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' at this facility is prohibited. The discharge of 'designated waste' at this facility is prohibited. For the purpose of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Title 27.

2. The discharge of liquid or semi-solid waste (i.e., waste containing less than 50% solids) to the landfill is prohibited.

3. The discharge to the landfill of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity is prohibited.

4. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

5. The discharge of wastes to areas not specified by these WDRs is prohibited.

6. The discharge of solid wastes outside of the existing footprint without a RCRA Subtitle D liner (as described in Discharge Specifications B.4 through B.7) is prohibited.

7. Except for the Class II surface impoundment, the discharge of waste to ponded water from any source is prohibited.

8. The discharge of waste within 100 feet of surface waters is prohibited.

9. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:

   a. require a higher level of containment than provided by the unit,

   b. are 'restricted hazardous wastes', or

   c. impair the integrity of containment structures

   is prohibited.

B. DISCHARGE SPECIFICATIONS

GENERAL SPECIFICATIONS

1. Wastes shall only be discharged into, and shall be confined to, the WMU specifically designed for their containment, as stated in Findings of this Order, and shown on Attachment B.

2. Wastes shall not be discharged below 1,560 feet, mean sea level. A minimum separation of five feet shall be maintained between waste or leachate and the highest anticipated elevation of underlying groundwater, including the capillary fringe.

3. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control.

General Facility Construction

4. All containment systems shall include a leachate collection and removal system (LCRS) which shall convey all leachate which reaches the liner to an appropriately lined sump or other appropriately lined collection area. The LCRS shall not rely upon unlined or clay-lined areas for such conveyance.

5. New clay liners and landfill covers shall have a maximum hydraulic conductivity of 1×10^{-7} cm/sec and a minimum relative compaction of 90 percent. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cover materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by field testing in accordance with the Standard Provisions and Reporting Requirements as described in Provision D.1.

6. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below 6 inches, the minimum needed to ensure efficient pump operation.

7. Each landfill unit phase constructed after the effective date of this Order shall be designed and constructed in accordance with Title 27 and this Order and approved by Board staff prior to operation. **Ninety days** prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to Board staff for review and approval and shall include, but not be limited to, the engineered design plans, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan. Approval of the final design report shall be obtained from Board staff prior to the construction of the landfill liner or cover. A final construction report shall be submitted for approval by Board staff after each phase of construction and prior to the discharge of waste into the constructed phase. The final construction report shall include, but not be limited to, as-built plans, a CQA report with a written summary of the CQA program and all test results, analyses, and copies of the inspector's original field notes, and a certification as described in the Standard Provisions and Reporting Requirements.

Supervision and Certification of Construction

8. All containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer or a certified engineering geologist and shall be certified by that individual as meeting the prescriptive standards and performance goals of Title 27 prior to waste discharge.

Protection from Storm Events

9. WMU's shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year return period. WMU's and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under 100-year, 24-hour precipitation conditions.

10. Precipitation and drainage control systems shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions, as described in Finding No. 13 above.

11. Any water that comes in contact with waste shall be considered leachate and shall be collected and routed to a surface impoundment.

12. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

13. Annually, prior to the anticipated rainy season, but no later than **1 November**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance,

or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site and to prevent surface drainage from contacting or percolating through wastes. The Discharger shall submit an annual report to the Regional Board by **15 November** each year describing measures taken to comply with this specification.

14. Waste management units shall be designed, constructed, and operated in compliance with precipitation and flood conditions contained in the Standard Provisions and Reporting Requirements referenced in Provision D.1, below.

15. During the rainy season, a minimum two-foot thickness of low permeability (1 x 10-5 cm/sec hydraulic conductivity or less) cover shall be maintained over all but the active disposal area of the landfill unit. The active disposal area shall be confined to the smallest area practicable, based on the anticipated quantity of waste discharge and other waste management facility operations.

SURFACE IMPOUNDMENT SPECIFICATIONS

16. Surface impoundments shall consist of, described from top to bottom, a 80-mil HDPE geomembrane primary liner, a geonet LCRS on the sidewalls of the pond with a one foot layer of drainage gravel on the bottom of the pond, a 40-mil HDPE geomembrane liner with geosynthetic clay liner (GCL) composite secondary liner, and an appropriate bedding layer. The Discharger proposes to drain leachate from the pond using a gravity drainage system from the base of the sump.

17. Surface impoundments shall be designed, constructed, and operated to maintain two feet of freeboard. However, at no time shall the freeboard of an impoundment be less than two feet.

18. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.

19. Surface impoundments shall be designed, constructed, and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the waterline.

20. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.

21. Solids which accumulate in any surface impoundments shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for landfill and surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Title 27, Division 2, Subdivision 1, Chapter 3, Article 2. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to Board staff for review. The solids may be discharged to the Class III landfill units only if Board staff determine that the solids qualify for classification as 'nonhazardous solid waste' or 'inert waste'.

LANDFILL SPECIFICATIONS

22. All containment systems shall include the components of the engineered alternative as described in Finding 28 and Attachments D and E of this Order.

23. During the rainy season, the landfill shall be operated and graded to minimize leachate

24. Landfill leachate shall be discharged to a Class II surface impoundment or a community sewerage treatment facility, or used for dust control in the lined areas of the landfill.

25. Leachate generation by a landfill unit LCRS shall not exceed 85% of the design capacity of the LCRS or the sump pump. If leachate generation exceeds this value and/or if the depth of fluid in the LCRS sump exceed 24 inches, then the Discharger shall immediately cease the discharge of sludge and other high-moisture wastes to the landfill unit and shall notify the Board in writing within seven days. Notification shall include a time table for a corrective action necessary to reduce leachate production.

WMU CLOSURE SPECIFICATIONS

26. Closure of the WMUs shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.

Surface Impoundment Closure

27. At closure of surface impoundments, all residual wastes, including liquids, sludges, precipitates, settled solids, and liner materials and adjacent natural geologic materials contaminated by wastes, shall be completely removed and discharge to a WMU approved by the Board. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment shall be closed as a landfill pursuant to Specifications 30 through 33 below.

28. If (1) residual wastes are classified as non-hazardous pursuant to Title 22, CCR, Division 4, Chapter 30, (2) containment features of the impoundment meet Class II landfill construction standards and performance goals as defined by Title 27, (3) all liquid waste are removed or treated to eliminate free liquids, and (4) residual moisture does not exceed the moisture-holding capacity of residual wastes, even under closure conditions, a surface impoundment may be closed as a landfill pursuant to Specifications 30 through 33 below after compaction of the residual wastes.

Landfill Closure

29. Any closed landfill shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

30. At closure, the landfill unit shall receive a final cover which is designed to function with minimum maintenance and consists, at a minimum, of a two-foot thick foundation layer

which may contain waste materials, overlain by a one-foot thick clay liner, and finally by a one-foot thick vegetative soil layer.

31. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.

32. Closed landfill units shall be graded to at least a three-percent grade and maintained to prevent ponding.

33. Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

C. RECEIVING WATER LIMITATIONS

Water Quality Protection Standards

The concentrations of indicator parameters or waste constituents in waters passing through the Points of Compliance shall not exceed the "water quality protection standards" established pursuant to Monitoring and Reporting Program No. 98-159, which is attached to and made part of this Order.

D. PROVISIONS

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated August 1997, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.

2. The Discharger shall comply with all applicable provisions of 27 CCR §20005, et seq. and 40 CFR Part 258 that are not specifically referred to in this Order.

3. The Discharger shall comply with Monitoring and Reporting Program No. 98-159, which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls, and monitoring groundwater, leachate from the landfill unit(s), the vadose zone, and surface waters throughout the active life of the landfill and the post-closure maintenance period. A violation of Monitoring and Reporting Program No. 98-159 is a violation of these waste discharge requirements.

4. The Discharger shall maintain legible records of the volume (cubic yards) and type (i.e., domestic refuse, construction debris, ash, tires, woodwaste, etc.) of each waste discharged at the landfill and the manner and location of discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Board and of the State Water Resources

Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board.

5. The Discharger shall provide proof to the Board **within sixty days after completing final closure** that the deed to the landfill facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:

   a. the parcel has been used as a municipal solid waste landfill (MSWLF);

   b. land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and

   c. in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.

6. The Discharger shall maintain a copy of this Order at the site and make it available at all times to site operating personnel, who shall be made familiar with its contents, and to regulatory agency personnel.

7. The Discharger shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. 98-159 in accordance with the following time schedule:

Task		Compliance Date
a.	Submit Storm Water Pollution Prevention Plan	**30 September 1998**
b.	Submit financial assurances for Class III landfill	**30 September 1998**
c.	Submit concentration limits for constituents of concern per Monitoring and Reporting Program No. 98-159	**30 September 1999**

E. FINANCIAL ASSURANCE

The Discharger shall maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units. The Discharger shall also maintain an irrevocable closure fund or other means to ensure adequate closure and post-closure maintenance of each waste management unit.

F. REPORTING REQUIREMENTS

1. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the facility. The Discharger shall also notify the Board of a material change in the character, location, or volume of the waste discharge and of any proposed expansions or closure plans. This notification shall be given 120 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these waste discharge requirements.

2. The Discharger shall notify the Board within 24 hours of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste facilities or of precipitation and drainage control structures.

3. The Discharger shall submit a closure and post-closure maintenance plan (or submit suitable modifications to a pre-existing plan) that complies with 40 CFR 258.60 and with Title 27 CCR.

4. The post-closure maintenance period shall continue until the Board determines that remaining wastes in the landfill will not threaten water quality.

5. The owner of the facility shall have the continuing responsibility to assure protection of usable waters from discharged waste during the active life, closure, and post-closure maintenance period of the facility and during subsequent use of the property for other purposes.

6. In the event of any change in ownership of this facility, the Discharger shall notify the succeeding owner or operator, in writing, of the existence of this Order. A copy of that notification shall be sent to the Board.

7. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with Monitoring and Reporting Program No. 98-159, as required by Sections 13750 through 13755 of the California Water Code.

8. The Discharger shall submit status report regarding the financial assurances for corrective action and closure every five years after the date of adoption of these requirements that either validates the ongoing viability of the financial instruments or proposes and substantiates any needed changes.

9. The Board will review this Order periodically and may revise requirements when necessary.

I, GARY M. CARLTON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 24 July 1998.

GARY M. CARLTON, Executive Officer

AMENDED
rae:lsb:eastlake.wrd

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 98-159

FOR
THE COUNTY OF LAKE
EASTLAKE LANDFILL FACILITY
CLASS III LANDFILL
CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY

The Discharger shall maintain water quality monitoring systems that are appropriate for detection and evaluation monitoring and that comply with the provisions of Title 27, California Code of Regulations (CCR), Division 2, Subdivision 1, Chapter 3, Subchapter 3, Article 1.

Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. 98-159. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes non-compliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

A. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in non-compliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. A short discussion of the monitoring results, including notations of any water quality violations, shall precede the tabular summaries.

Field and laboratory tests shall be reported in the semi-annual monitoring reports. Semi-annual monitoring reports shall be submitted to the Board by the **15th day of the month** following the calendar quarter in which the samples were taken. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board. An annual report shall be submitted to the Board which contains both tabular and graphical summaries of the monitoring data obtained during the previous twelve months, so as to show historical trends at each well. The report shall include a discussion of the progress toward re-establishment of compliance with waste discharge requirements and the water quality protection standard.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Metals shall be analyzed according to the methods listed in Attachment G.

B. REQUIRED MONITORING REPORTS

1. Water Quality Protection Standard Report

The Discharger shall develop water quality protection standards and submit them in the Annual Monitoring Summary Report.

2. Detection and Evaluation Monitoring Report

The Discharger shall submit reports of the results of detection and evaluation monitoring in accordance with the schedules specified in this Monitoring and Reporting Program.

3. Annual Monitoring Summary Report

The Discharger shall submit the Annual Monitoring Summary Report as specified in the Standard Provisions and Reporting Requirements.

4. Constituents-of-Concern (COC) 5 Year Report

In the absence of a new release being indicated, the Discharger shall monitor all Constituents of Concern for all Monitoring Points for each monitored medium for all COCs every fifth year, beginning with the first quarterly sampling event after the adoption date of this monitoring and reporting program, with subsequent COC monitoring efforts being carried out every fifth year thereafter alternately in the third quarter (Reporting period ends 30 September) and first quarter (Reporting Period ends 31 March). The COC Report may be combined with a Detection Monitoring Report or an Annual Summary Report having a Reporting Period that ends at the same time.

5. Constituents-of-Concern (COC) Leachate Detection Report

The Discharger shall report to the Board by no later than 31 January of a given year the analytical results of the leachate sample taken the previous fourth quarter, including an identification of all detected COCs in Attachment G that are not on the landfill's Constituent of Concern list.

During any year in which a second quarter leachate re-test is performed, the Discharger shall submit a report to the Board, by no later than 31 July of that year, identifying all constituents which must be added to the landfill's COC list as a result of having been detected in both the (previous calendar year's) fourth quarter sample and in the second quarter re-test sample.

Standard Observations

Each monitoring report shall include a summary and certification of completion of all Standard Observations for the waste management unit, for the perimeter of the WMU, and for the receiving waters. The standard observations shall be performed on a weekly basis and shall include those elements as defined in the Standard Provisions and Reporting Requirements.

C. MONITORING

If the Discharger, through a detection monitoring program, or the Board finds that there is a measurably significant evidence of a release from a waste management unit or waste constituents over the water quality protection standards (established pursuant to Monitoring and Reporting Program No. 98-159) at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days, and shall immediately resample for the constituent(s) or parameter(s) at the point where the standard was exceeded. Within 90 days, the Discharger shall submit to the Board the results of the resampling and either:

a. a report demonstrating that the water quality protection standard was not, in fact, exceeded; or

b. an amended Report of Waste Discharge for the establishment of a evaluation monitoring program, per Section 20425 of Title 27, which is designed to assess the nature and extent of the release from the unit and to design a corrective action program meeting the requirements of Section 20430.

If the Discharger, through an evaluation monitoring program, or the Board verifies that water quality protection standards have been exceeded at or beyond the Points of Compliance, the Discharger shall notify the Board or acknowledge the Board's finding in writing within seven days. Within 180 days, the Discharger shall submit to the Board an amended Report of Waste Discharge for the establishment of a corrective action program, per Section 20420 of Title 27, which is designed to achieve compliance with the water quality protection standards.

D. REQUIRED MONITORING PROGRAMS

1. Detection and Evaluation Monitoring Program

For each monitored medium, all Monitoring Points assigned to detection monitoring and/or evaluation monitoring shall be monitored once each calendar quarter for the Monitoring Parameters listed in this Program, unless otherwise specified. The Discharger shall report, in writing, to the regional board on the extent and nature of the release. The Discharger shall submit these reports at least quarterly.

For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

Groundwater sampling shall also include an accurate determination of the groundwater surface elevation and field parameters (pH, temperature, electrical conductivity, turbidity) for that Monitoring Point. Groundwater elevations taken prior to purging the well and sampling for Monitoring Parameters shall be used to fulfill the groundwater gradient/direction analyses required. For each monitored groundwater body, the Discharger shall measure the water level in each well and determine groundwater gradient and direction at least quarterly, including the times of expected highest and lowest elevations of the water level for the respective groundwater body. Groundwater elevations for all upgradient and downgradient wells for a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater gradient and direction. This information shall be included in the quarterly monitoring reports.

Statistical or non-statistical analysis should be performed as soon as the monitoring data are available.

2. Leachate Monitoring

The landfill sumps shall be inspected weekly for leachate generation. Upon detection of leachate in a previously dry LCRS, the Discharger shall immediately sample the leachate and continue to sample the leachate as specified in Table 1 - Leachate Monitoring Program. The quantity of leachate pumped from each sump shall be measured continuously and reported as Leachate Flow Rate (in gallons per day). The surface impoundment shall be sampled as specified in Table 1. Surface impoundment freeboard shall be monitored weekly and reported quarterly.

TABLE 1 - LEACHATE MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Total Flow	gallons	Monthly
Flow Rate	gallons/day	Monthly
Specific Conductance	µmhos/cm	Monthly
pH	number	Monthly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/l	Quarterly
Chloride	mg/l	Quarterly
Sulfate	mg/l	Quarterly
Nitrate - Nitrogen	mg/l	Quarterly
Volatile Organic Compounds (EPA Method 8260, see Attachment F)	µg/l	Quarterly
Constituents of Concern		
Total Organic Carbon	mg/l	Annually
Carbonate	mg/l	Annually
Bicarbonate	mg/l	Annually
Alkalinity	mg/l	Annually
Volatile Organic Compounds (EPA Method 8260, see Attachment G)	µg/l	Annually
Semi-Volatile Organic Compounds (EPA Method 8270, see Attachment G)	µg/l	Annually
Organochlorine Pesticide, PCBs (EPA Method 8080, see Attachment G)	µg/l	Annually
Chlorophenoxy Herbicides (EPA Method 8150, see Attachment G)	µg/l	Annually
Inorganics (dissolved) (See Attachment G for Method)	mg/l	Annually

3. Groundwater Monitoring

Field and laboratory tests shall be reported in the quarterly monitoring reports. All Monitoring Parameters shall be graphed so as to show historical trends at each well.

The groundwater surface elevation (in feet and hundredths, M.S.L.) in all wells shall be measured on a quarterly basis and used to determine the velocity and direction of groundwater flow. This information shall be displayed on a water table contour map and/or groundwater flow net for the site and submitted with the quarterly monitoring reports.

There are ten groundwater wells currently installed around the landfill. Monitoring wells MW-3 and MW-6 are designated background wells; however, the concentrations of chloride and sulfate in MW-6 are more similar to those in downgradient MW-5 and significantly higher than those in MW-3.

Therefore, MW-6 is no longer considered representative of background water quality. The Discharger installed another upgradient monitoring well pair (MW-9a and MW-9b) in the northeast corner of the landfill. Monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7, and MW-8 are downgradient wells.

The detection and evaluation monitoring well network shall consist of background monitoring wells MW-3, MW-9a, and MW-9b and downgradient monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7 and MW-8. Locations of these wells are shown on Attachment B. Samples shall be collected from the all wells at the frequency and for the parameters specified in Table 2 - Groundwater Monitoring Program.

TABLE 2 - GROUNDWATER MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters*		
Temperature	°C	Quarterly
Groundwater Elevation	Ft. & hundredths, MSL	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	number	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters*		
Total Dissolved Solids (TDS)	mg/l	Quarterly
Chloride	mg/l	Quarterly
Sulfate	mg/l	Quarterly
Nitrate - Nitrogen	mg/l	Quarterly
Volatile Organic Compounds (VOCs) (EPA Method 8260, See Attachment F)	µg/l	Quarterly
Constituents of Concern*		
Total Organic Carbon	mg/l	5 years
Carbonate	mg/l	5 years
Bicarbonate	mg/l	5 years
Alkalinity	mg/l	5 years
Volatile Organic Compounds (EPA Method 8260, See Attachment G)	µg/l	5 years
Semi-Volatile Organic Compounds (EPA Method 8270, See Attachment G)	µg/l	5 years
Organochlorine Pesticide, PCBs (EPA Method 8080, See Attachment G)	µg/l	5 years
Chlorophenoxy Herbicides (EPA Method 8150, See Attachment G)	µg/l	5 years
Organophosphorus Compounds (EPA Method 8141, See Attachment G)	µg/l	5 years
Inorganics (dissolved)* (See Attachment G for Method)	mg/l	5 years

* Background wells to be monitored quarterly for one year to determine a concentration limit.

4. Surface Water Monitoring

The surface water monitoring network includes three sampling points. SWMS-1 is in Molesworth Creek just below the existing leachate storage pond. SWMS-2 is in an unnamed tributary to Cache

Creek. A new monitoring station SWMS-3, to be upstream in the unnamed tributary, is proposed to monitor background surface water quality.

Surface water samples are to be collected after the first storm of the rainy season which produces significant flow and quarterly thereafter when water is present. Samples shall be collected from all stations and analyzed at the frequency and for the monitoring parameters specified in Table 3 - Surface Water Monitoring Program. The Discharger shall submit the surface water monitoring reports with the corresponding quarterly groundwater monitoring reports. The Discharger shall include an evaluation of surface water quality impacts and compliance with the Water Quality Protection Standard.

The Discharger shall monitor surface water in compliance with *Discharges of Storm Water Associated with Industrial Activities* (Water Quality Order No. 97-03-DWQ), General Storm Water Permit. All surface water monitoring shall comply with the Storm Water Pollution Prevention Plan as outlined in D.7 of WDRs No. 98-159.

TABLE 3 - SURFACE WATER MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters*		
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	number	Quarterly
Turbidity	Turbidity units	Quarterly
Monitoring Parameters*		
Total Suspended Solids	mg/l	Quarterly
Total Dissolved Solids	mg/l	Quarterly
Chloride	mg/l	Quarterly
Sulfate	mg/l	Quarterly
Nitrate - Nitrogen	mg/l	Quarterly
Constituents of Concern*		
Total Organic Carbon	mg/l	Annually
Carbonate	mg/l	Annually
Bicarbonate	mg/l	Annually
Alkalinity	mg/l	Annually
Chemical Oxygen Demand	mg/l	Annually
Dissolved Oxygen	mg/l	Annually
Oil and Grease	mg/l	Annually
VOCs* (EPA Method 8260) (See Attachment F)	µg/l	Annually
Inorganics**(total recoverable metals) (See Attachment G for Method)	mg/l	5 -years

* Volatile Organic Compounds shall be monitored at SWMS-1 during the first quarter of each year when water is present in Molesworth Creek.

** To be monitored quarterly for one year to determine a concentration limit.

5. Unsaturated Zone Monitoring

Unsaturated zone monitoring shall be incorporated into any expansion of the footprint after 9 October 1993. Soil-pore liquid samples shall be analyzed at the frequency and for the monitoring parameters specified in Table 4 - Unsaturated Zone Monitoring Program.

Unsaturated zone monitoring reports shall be submitted with the corresponding quarterly groundwater monitoring and shall include evaluation of potential impacts of the facility on the unsaturated zone and compliance with the Water Quality Protection Standard.

TABLE 4 - UNSATURATED ZONE MONITORING PROGRAM

Parameter	Units	Frequency
Field Parameters		
Specific Conductance*	µmhos/cm	Quarterly
pH*	pH units	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)*	mg/l	Quarterly
Chloride*	mg/l	Quarterly
Sulfate*	mg/l	Quarterly
Nitrate - Nitrogen*	mg/l	Quarterly
Constituents of Concern		
Total Organic Carbon*	mg/l	Annually
Carbonate*	mg/l	Annually
Bicarbonate Alkalinity*	mg/l	Annually
Volatile Organic Compounds (EPA Method 8260)	µg/l	Annually
Semi-Volatile Organic Compounds (EPA Method 8270)	µg/l	5 years
Organochlorine Pesticide, PCBs (EPA Method 8080)	µg/l	5 years
Chlorophenoxy Herbicides (EPA Method 8150)	µg/l	5 years
Organophosphorus Compounds (EPA Method 8140)	µg/l	5 years
Inorganics* (totals) (See Attachment G for Method)	mg/l	5 years

* To be monitored quarterly for one year in order to determine a concentration limit.

6. Intermediate Cover Monitoring

Each **1 October** a technical report shall be submitted documenting the permeability and thickness of the cover of all but the active disposal area of the landfill, as required by Discharge Specification B.15.

D. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard (Standard) consists of the following elements:

a. Constituents of Concern;
b. Concentration Limits;
c. Monitoring Points;
d. Points of Compliance; and
e. Compliance Period.

Each of these is described as follows:

1. Constituents of Concern

The 'COC list' (list of Constituents of Concern required under 27 CCR 20395) shall include all constituents listed in Tables 1, 2, 3, and 4 (above), the Waste Discharge Requirements No. 98-159, and all constituents listed in Attachment G. The Discharger shall monitor all COCs every five years, or more frequently as required under the detection and evaluation monitoring program.

2. Concentration Limits

The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in a given monitored medium (i.e., the uppermost aquifer) at a landfill shall be as follows, and shall be used as the basis of comparison with data from the Monitoring Points in that monitored medium:

a. The background value established in the WDRs by the Board for that constituent and medium;

b. The constituent's background value, established anew during each Reporting Period using only data from all samples collected during that Reporting Period from the Background Monitoring Points for that monitored medium. Either:

(1) The mean (or median, as appropriate) and standard deviation (or other measure of central tendency, as appropriate) of the constituent's background data; or

(2) The constituent's MDL, in cases where less than 10 percent of the background samples exceed the constituent's MDL; or

c. A concentration limit greater than background, as approved by the Board for use during or after corrective action.

Groundwater

Concentration limits for synthetic constituents in groundwater samples shall be set at the analytical detection limits. Concentration limits for metals and general water quality parameters shall be calculated using the analytical data for background wells MW-3, MW-9a and MW-9b when sufficient data is available. The background wells shall be monitored quarterly until four quarters of data have been obtained in order to determine the concentration limits.

Surface Water

The new upstream surface water monitoring locations shall be monitored quarterly until four quarters of data have been obtained in order to determine the concentration limits for surface water.

3. Monitoring Points

The groundwater monitoring points for detection and evaluation monitoring shall be background monitoring wells MW-3, MW-9a and MW-9b, and downgradient wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7 and MW-8. The surface water monitoring points for detection monitoring shall be SWMS-1, SWMS-2, and SWMS-3. The unsaturated monitoring point for the detection monitoring shall be collected from the two lysimeters, LS-1 and LS-2, beneath the compositely lined portion of landfill unit.

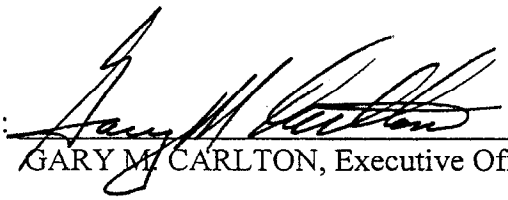
4. Points of Compliance

The points of compliance for groundwater are monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-7 and MW-8. The points of compliance for surface water are monitoring stations SWMS-1, SWMS-2, and SWMS-3. The points of compliance for unsaturated zone are LS-1 and LS-2.

5. Compliance Period

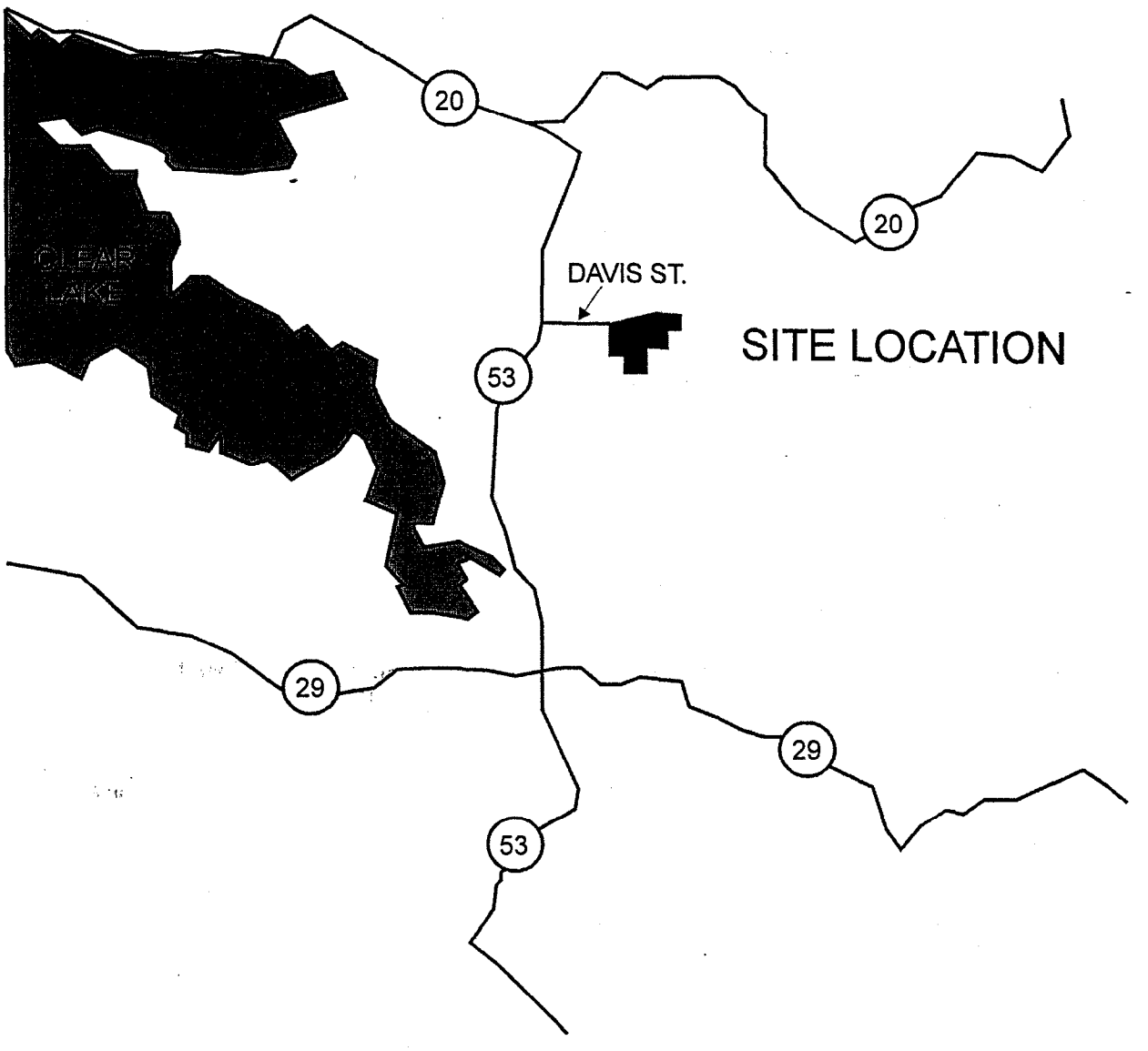
The Compliance Period is the number of years equal to the active life of the landfill plus the closure period. Each time the Standard is exceeded (i.e., a release is discovered), the landfill begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the landfill has been in continuous compliance for at least three consecutive years.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: 
GARY M. CARLTON, Executive Officer

24 July 1998
(Date)

rae:lsb:eastlake.mrp



N

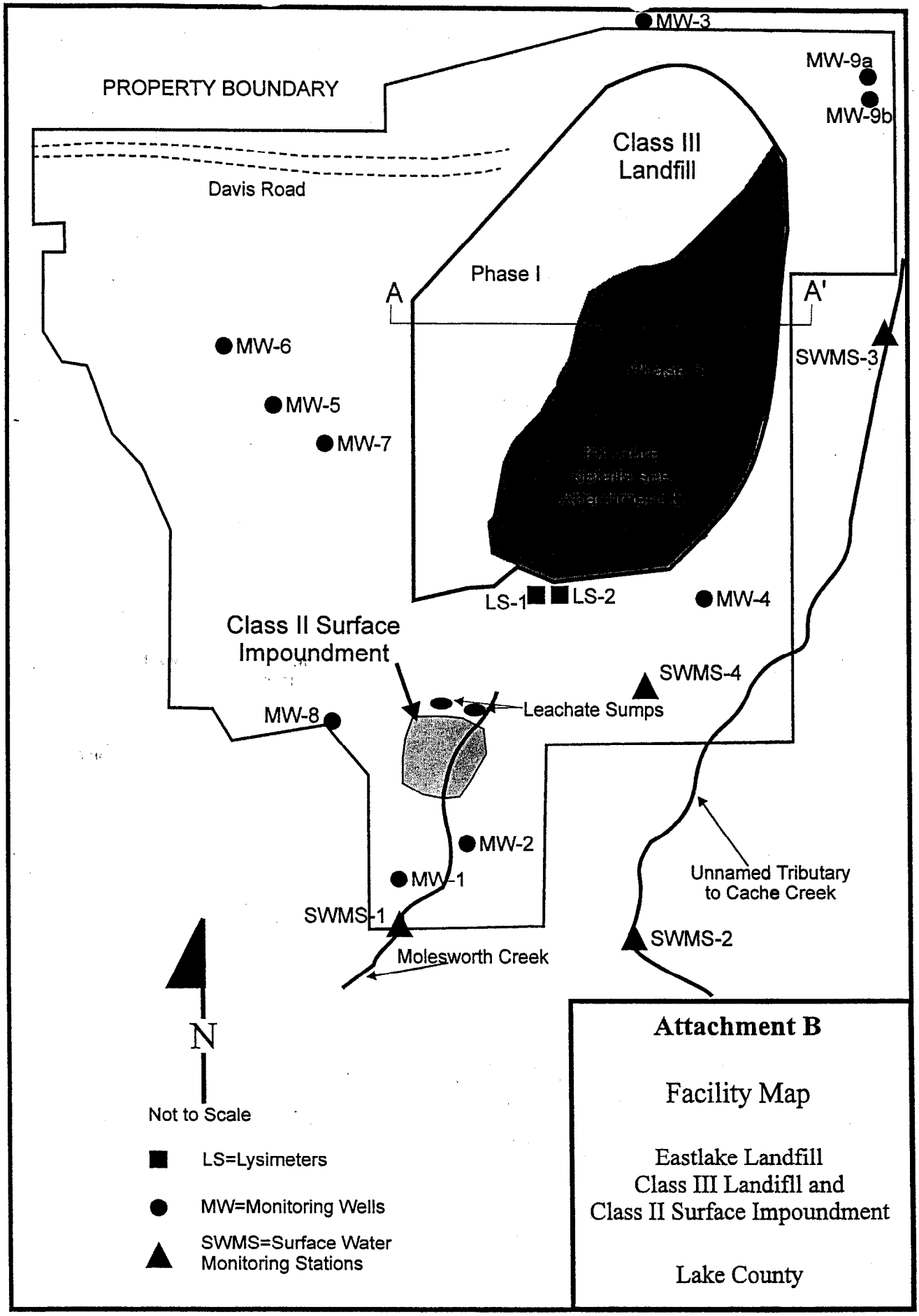
Not to Scale

Attachment A

Site Location Map

Eastlake Landfill
Class III Landifll and
Class II Surface Impoundment

Lake County

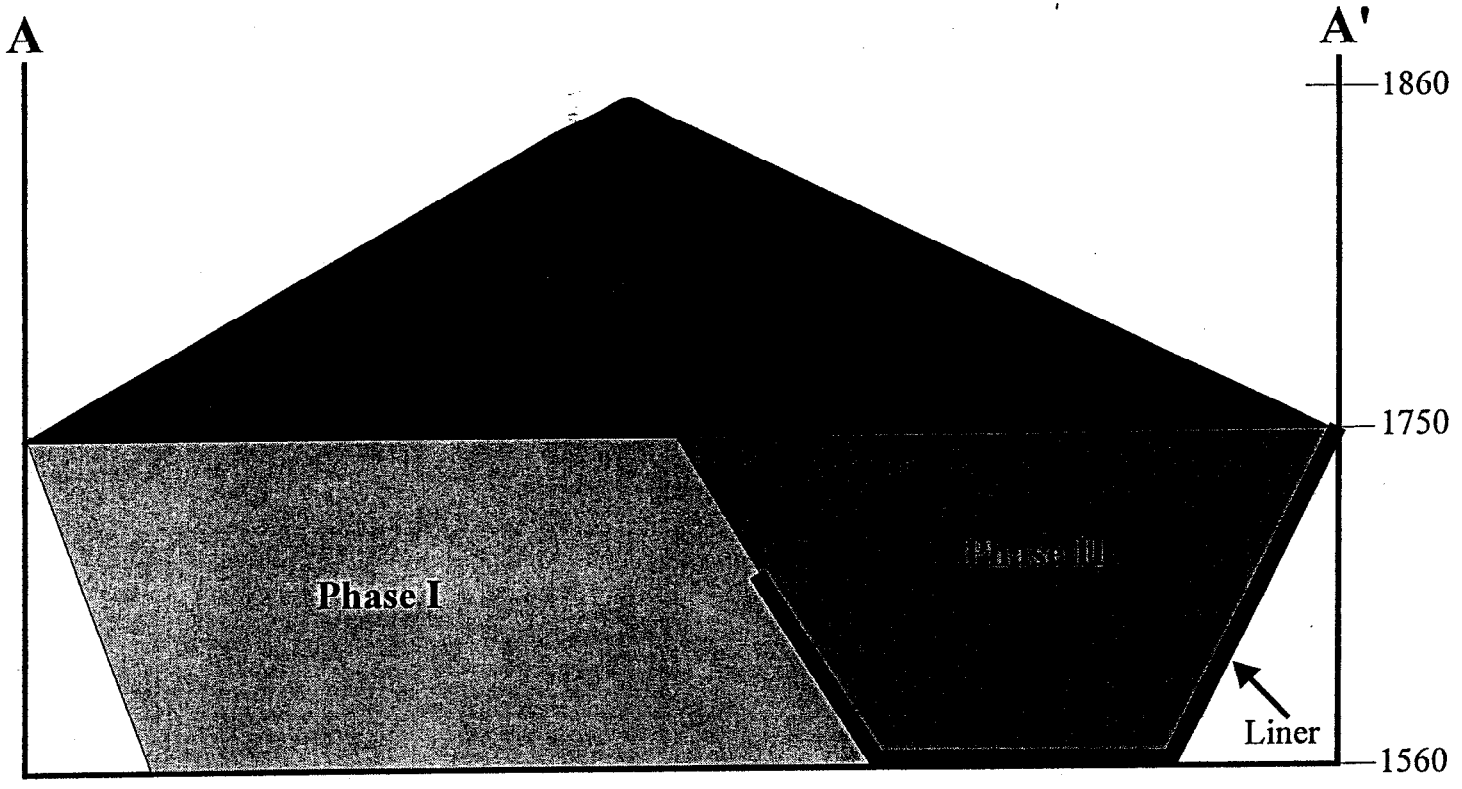


Attachment B

Facility Map

Eastlake Landfill
Class III Landifll and
Class II Surface Impoundment

Lake County



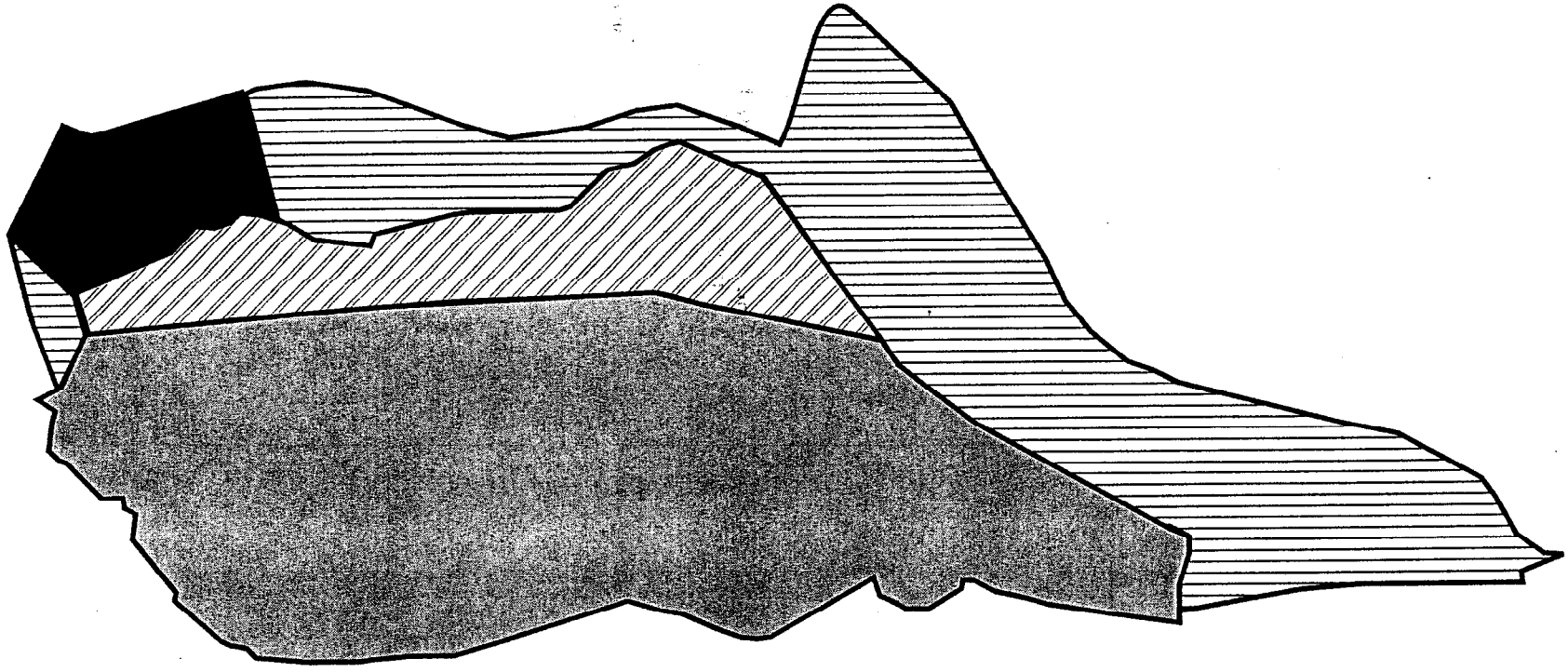
Attachment C

Landfill Cross Section A-A' and Phases

Eastlake Landfill
Class III Landfill

Lake County

Phase II Liner Location Map



LEGEND

- Type 1 Liner System
- Type 2 Liner System
- Type 3 Liner System
- Type 4 Liner System

N

0 60 120

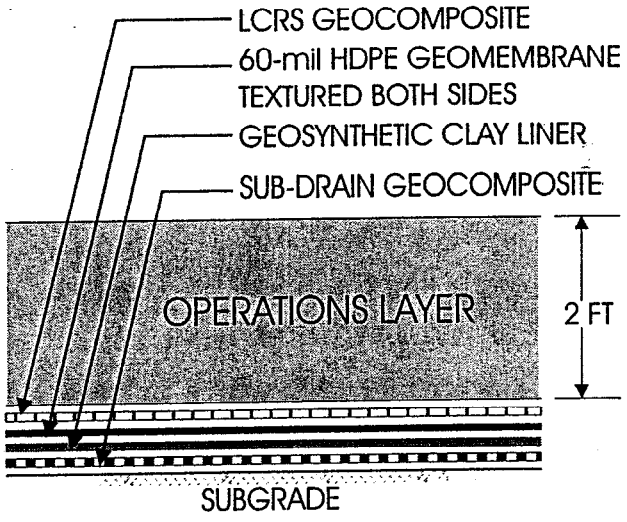
FEET

Attachment D

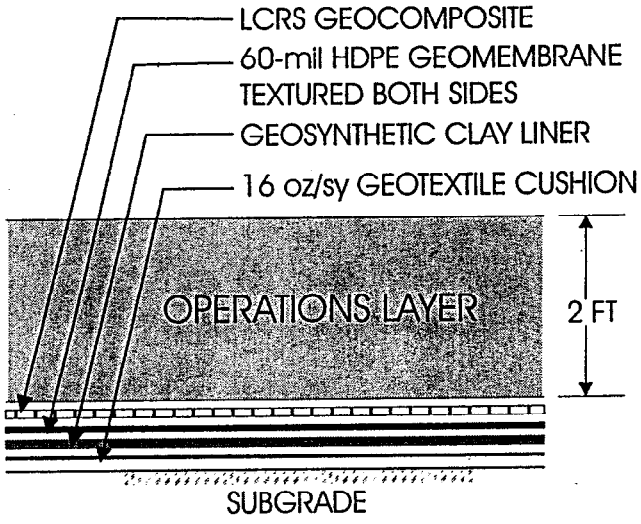
Phase II Liner Location Map

Eastlake Landfill
Class III Landfill

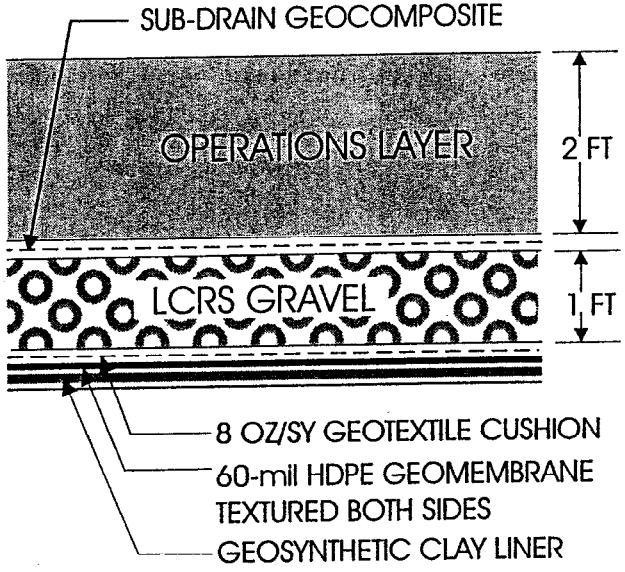
Lake County



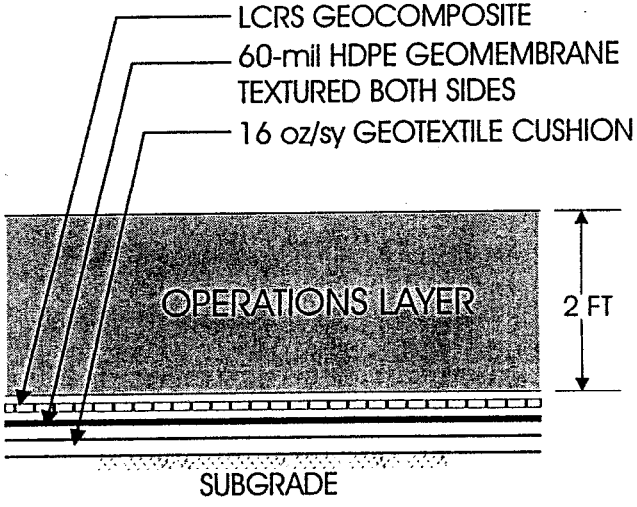
TYPE 1 LINER SYSTEM DETAIL



TYPE 2 LINER SYSTEM DETAIL



TYPE 3 LINER SYSTEM DETAIL



TYPE 4 LINER SYSTEM DETAIL

Attachment E

Phase II Liner Systems

Eastlake Landfill
Class III Landfill

Lake County

Attachment F

WASTE DISCHARGE REQUIREMENTS ORDER NO. 98-159
EASTLAKE LANDFILL FACILITY
CLASS III LANDFILLS, CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY

MONITORING PARAMETERS FOR DETECTION MONITORING

Surrogates for Metallic Constituents:

pH
Total Dissolved Solids
Specific Conductivity
Chloride
Sulfate
Nitrate nitrogen

Constituents included in VOC_{water} (by USEPA Method 8260):

Acetone
Acrylonitrile
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform (Tribromomethane)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dibromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)
cis-1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)

Constituents included in VOC_{water} (by USEPA Method 8260) Continued:

cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
2-Hexanone (Methyl butyl ketone)
Methyl bromide (Bromomethene)
Methyl chloride (Chloromethane)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
4-Methyl-2-pentanone (Methyl isobutylketone)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Toluene
1,1,1-Trichloethane (Methylchloroform)
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene)
Trichlorofluoromethane (CFC-11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes

ATTACHMENT G

WASTE DISCHARGE REQUIREMENTS ORDER NO. 98-159
EASTLAKE LANDFILL FACILITY
CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Inorganics (by USEPA Method):

Aluminum	6010
Antimony	6010
Barium	6010
Beryllium	6010
Cadmium	6010
Chromium	6010
Chromium VI^{+}	7197
Cobalt	6010
Copper	6010
Iron	6010
Manganese	6010
Silver	6010
Tin	6010
Vanadium	6010
Zinc	6010
Arsenic	7061
Lead	7421
Mercury	7470
Nickel	7520
Selenium	7741
Thallium	7841
Cyanide	9010
Sulfide	9030

[1] Report all peaks identified by the EPA test methods. Ground water and leachate samples shall be analyzed and reported as dissolved. Surface water samples shall be analyzed and reported as total recoverable metals as specified in EPA-600/4-79-020 dated March 1993. Unsaturated zone water samples shall be analyzed and reported as totals.

Volatile Organics (USEPA Method 8260):

Acetone
Acetonitrile (Methyl cyanide) Acrolein
Acrylonitrile
Allyl chloride (3-Chloropropene) Benzene
Bis(2-ethylhexyl) phthalate
Bromochloromethane (Chlorobromomethane)
Bromodichloromethane (Dibromochloromethane)
Bromoform (Tribromomethane)

Volatile Organics (USEPA Method 8260) Continued:

Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane (Ethyl chloride)
Chloroform (Trichloromethane)
Chloroprene
Dibromochloromethane (Chlorodibromomethane)
1,2-Dibromo-3-chloropropane (DBCP)
1,2-Dibromoethane (Ethylene dribromide; EDB)
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
trans- 1,4-Dichloro-2-butene
Dichlorodifluoromethane (CFC 12)
1,1-Dichloroethane (Ethylidene chloride)
1,2-Dichloroethane (Ethylene dichloride)
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)
cis- 1,2-Dichloroethylene (cis- 1,2-Dichloroethene)
trans- 1,2-Dichloroethylene (trans- 1,2-Dichloroethene)
1,2-Dichloropropane (Propylene dichloride)
1,3-Dichloropropane (Trimethylene dichloride)
2,2-Dichloropropane (Isopropylidene chloride)
1,1 -Dichloropropene
cis- 1 ,3-Dichloropropene
trans- 1,3-Dichloropropene
Ethylbenzene
Hexachlorobutadiene
2-Hexanone (Methyl butyl ketone)
Isobutyl alcohol
Isodrin
Methacrylonitrile
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl ethyl ketone (MEK; 2-Butanone)
Methyl iodide (Iodomethane)
Methyl methacrylate
4-Methyl-2-pentanone (Methyl isobutyl ketone)
Methylene bromide (Dibromomethane)
Methylene chloride (Dichloromethane)
Naphthalene
Propionitrile (Ethyl cyanide)
Styrene

Volatile Organics (USEPA Method 8260 Continued):

1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
Toluene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane, Methylchloroform
1,1,2-Trichloroethane
Trichloroethylene (Trichloroethene; TCE)
Trichlorofluoromethane (CFC- 11)
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride (Chloroethene)
Xylene (total)

Semivolatile Organics (USEPA Method 8270 - base, neutral, & acid extractables):

Acenaphthene
Acenaphthylene
Acetophenone
2-Acetylaminofluorene (2-AAF)
Aldrin
4-Aminobiphenyl
Anthracene
Benzo[a]anthracene (Benzanthracene)
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[g,h,i]perylene
Benzo[a]pyrene
Benzyl alcohol
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC (Lindane)
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether (Dichloroethyl ether)
Bis(2-chloro-1-methyethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)
4-Bromophenyl phenyl ether
Butyl benzyl phthalate (Benzyl butyl phthalate)
Chlordane
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol (4-Chloro-3-methylphenol)
2-Chloronaphthalene

Semivolatile Organics (USEPA Method 8270 - base, neutral, & acid extractables) Continued:

2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene o-Cresol (2-methylphenol)
m-Cresol (3-methylphenol)
p-Cresol (4-methylphenol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Diallate
Dibenz[a,h]anthracene
Dibenzofuran
Di-n-butyl phthalate
o-Dichlorobenzene (1,2-Dichlorobenzene)
m-Dichlorobenzene (1,3-Dichlorobenzene)
p-Dichlorobenzene (1,4-Dichlorobenzene)
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Dieldrin
Diethyl phthalate
p-(Dimethylamino)azobenzene
7,12-Dimethylbenz[a]anthracene
3,3'-Dimethylbenzidine
2,4-Dimehtylphenol (m-Xylenol)
Dimethyl phthalate
m-Dinitrobenzene
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-n-octyl phthalate
Diphenylamine
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Ethyl methacrylate
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene

Semivolatile Organics (USEPA Method 8270 - base, neutral, & acid extractables) Continued:

Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isophorone
Isosafrole
Kepone
Methapyrilene
Methoxychlor
3-Methylcholanthrene
Methyl methanesulfonate
2-Methylnaphthalene
Naphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
o-Nitroaniline (2-Nitroaniline)
m-Nitroaniline (3-Nitroaniline)
p-Nitroaniline (4-Nitroaniline)
Nitrobenzene
o-Nitrophenol (2-Nitrophenol)
p-Nitrophenol (4-Nitrophenol)
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)
N-Nitrosodiethylamine (Diethylnitrosamine)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosodiphenylamine (Diphenylnitrosamine)
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)
N-Nitrosomethylethylamine (Methylethylnitrosamine)
N-Nitrosopiperidine
N-Nitrosospyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloronitrobenzene (PCNB)
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
p-Phenylenediamine

Semivolatile Organics (USEPA Method 8270 - base, neutral, & acid extractables) Continued:

Polychlorinated biphenyls (PCBs; Aroclors)
Pronamide
Pyrene
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine
Toxaphene
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
0,0,0-Triethyl phosphorothioate
sym-Trinitrobenzene

Organophosphorus Compounds (USEPA Method 8140):

0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Dimethoate
Disulfoton
Methyl parathion (Parathion methyl)
Parathion
Phorate

Chlorinated Herbicides (USEPA Method 8150):

2,4-D (2,4-Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

INFORMATION SHEET

COUNTY OF LAKE
EASTLAKE LANDFILL FACILITY
CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENT
LAKE COUNTY

The Eastlake Sanitary Landfill is at the east end of Davis Street, in the City of Clearlake. Approximately 30-acres are dedicated to refuse disposal. The facility serves all of Lake County and has been in operation as a landfill since 1972. Prior to 1972, the upper slope along the west bank of Molesworth Creek was an open burn dump which served the east side of Clear Lake from Clearlake Oaks to Lower Lake. After open burning was terminated, a landfill operation was started in the bed of Molesworth Creek.

The landfill is at the head of Molesworth Creek. Trenches have been installed around the fill to divert surface drainage water away from refuse. However, a spring is buried under the current fill area. When the fill was originally started, two pipes were installed at the bottom of the fill. One pipe was to convey water from the spring and the other was to convey leachate to a holding pond. Flows from both pipes were subsequently intermingled. A cutoff trench and clay headwall have been installed below the current landfill. The leachate is collected and piped to a concrete sump and subsequently pumped to a 600,000 gallon Class II surface impoundment.

The landfill will be filled in three phases. Phase I consists of the existing fill. Phase II will extend from Phase I eastward in the canyon. Once Phase II is completed, Phase III will be a vertical expansion on top of Phases I and II. Because Phase I is unlined and the Discharger does not intend to put a liner over Phase I before filling Phase III, the waste stream will remain the same and no designated wastes or waste which could be discharged into a unit with an LCRS will be accepted during any of the phases.

The Discharger proposes an engineered alternative to the prescriptive liner requirements of Title 27 for Class III landfill units. The engineered alternative design consists of a geosynthetic clay liner (GCL) overlain by a 60-mil HDPE geomembrane. The Discharger also demonstrated that the engineered alternative liner design is feasible and consistent with the performance goal and affords equivalent protection against water quality impairment in accordance with Section 20080 (b) and (c) of Title 27.

The Discharger used an engineered alternative base liner to Chapter 15 prescriptive standards for the barrier layer of the 600,000 gallon Class II surface impoundment that consists of, described from top to bottom, a 80-mil HDPE geomembrane primary liner, a geonet LCRS on the sidewalls of the pond with a one foot layer of drainage gravel on the bottom of the pond, a 40-mil HDPE geomembrane liner with geosynthetic clay liner (GCL) composite secondary liner, and a 6 inch sand bedding layer. The Discharger drains leachate from the pond using a gravity drainage system from the base of the sump. Leachate overflow is pumped from the sump to the southeast Regional Wastewater Treatment Plant.

Waste discharge requirements for this site are being revised to incorporate an engineered alternative for the base liner design in Area II of the landfill unit. These WDRs require implementation of water quality monitoring for detection monitoring and evaluation monitoring in conformance with Title 27, CCR, Division 2, Subdivision 1, Chapter 3, Subchapter 3, Article 1.

Surface water drainage from the landfill is to Molesworth Creek, a tributary to Clear Lake.

7.24.98
rae:lsbeastlale.inf